

According to the UN GHS revision 8

Creation Date: April 30, 2026

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## 1. IDENTIFICATION

### 1.1 GHS Product identifier

**Product name:** Juglone  
**Catalog Number:** T4010  
**CAS Number:** 481-39-0

### 1.2 Other means of identification

**Other names:** -

### 1.3 Recommended use of the chemical and restrictions on use

**Identified uses:**

### 1.4 Supplier's details

**Company:** Targetmol Chemicals Inc.  
**Address:** 34 Washington Street, Wellesley Hills, Massachusetts 02481 USA  
**Tel/Fax:** (781) 999-4286

### 1.5 Emergency phone number

**Emergency phone number:** 781-999-4286  
**Service hours:** Monday to Friday, 9am-5pm (Standard timezone: UTC/GMT -5 hours).

## 2. HAZARD IDENTIFICATION

### 2.1 Classification of the substance or mixture

Acute toxicity - Category 3, Oral  
Skin irritation, Category 2  
Eye irritation, Category 2  
Specific target organ toxicity - single exposure, Category 3  
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s):**



**Signal word:**

Danger

**Hazard statement(s):**

H301 Toxic if swallowed  
H315 Causes skin irritation  
H319 Causes serious eye irritation  
H335 May cause respiratory irritation  
H400 Very toxic to aquatic life

**Precautionary statement(s):**

P264 Wash ... thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P271 Use only outdoors or in a well-ventilated area.

**Prevention:**

<b>Response:</b>	<p>P273 Avoid release to the environment.</p> <p>P301+P316 IF SWALLOWED: Get emergency medical help immediately.</p> <p>P321 Specific treatment (see ... on this label).</p> <p>P330 Rinse mouth.</p> <p>P302+P352 IF ON SKIN: Wash with plenty of water/...</p> <p>P332+P317 If skin irritation occurs: Get medical help.</p> <p>P362+P364 Take off contaminated clothing and wash it before reuse.</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P319 Get medical help if you feel unwell.</p> <p>P391 Collect spillage.</p>
<b>Storage:</b>	<p>P405 Store locked up.</p> <p>P403+P233 Store in a well-ventilated place. Keep container tightly closed.</p>
<b>Disposal:</b>	<p>P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.</p>

### 2.3 Other hazards which do not result in classification

no data available

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number
Juglone	-	481-39-0	207-567-5

## 4. FIRST-AID MEASURES

### 4.1 Description of necessary first-aid measures

#### General advice

no data available

#### If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

#### Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

#### Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

#### Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

### 4.2 Most important symptoms/effects, acute and delayed

no data available

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

no data available

## 5. FIRE-FIGHTING MEASURES

### 5.1 Extinguishing media

Use dry chemical, carbon dioxide or alcohol-resistant foam.

### 5.2 Specific hazards arising from the chemical

no data available

### 5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### 6.2 Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

### 6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### 7.2 Conditions for safe storage, including any incompatibilities

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

Keep away from direct sunlight, Store at low temperature, The compound is unstable in solution. Please use soon

Powder: -20°C for 3 years

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Occupational Exposure limit values

no data available

#### Biological limit values

no data available

### 8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### 8.3 Individual protection measures, such as personal protective equipment (PPE)

#### Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

#### Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

#### Thermal hazards

no data available

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state

Solid

<b>Color</b>	no data available
<b>Odour</b>	no data available
<b>Melting point/freezing point</b>	155°C(lit.)
<b>Boiling point or initial boiling point and boiling range</b>	158°C
<b>Flammability</b>	no data available
<b>Lower and upper explosion limit/flammability limit</b>	no data available
<b>Flash point</b>	64°C(lit.)
<b>Auto-ignition temperature</b>	no data available
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	no data available
<b>Solubility</b>	DMSO: 5.56 mg/mL (31.93 mM),The compound is unstable in solution. Please use soon.(DMSO inactivates the activity of Juglone.) Ethanol: 16.33 mg/mL (93.77 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
<b>N-octanol-water partition coefficient</b>	1.92
<b>Vapour pressure</b>	1.67E-06mmHg at 25°C
<b>Density and/or relative density</b>	1.2346 g/cm3 (Estimated)
<b>Relative vapour density</b>	no data available
<b>Particle characteristics</b>	no data available

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

no data available

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

no data available

### 10.6 Hazardous decomposition products

no data available

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

Oral: no data available

Inhalation: no data available

Dermal: no data available

### **Skin corrosion/irritation**

no data available

### **Serious eye damage/irritation**

no data available

### **Respiratory or skin sensitization**

no data available

### **Germ cell mutagenicity**

no data available

### **Carcinogenicity**

no data available

### **Reproductive toxicity**

no data available

### **STOT-single exposure**

no data available

### **STOT-repeated exposure**

no data available

### **Aspiration hazard**

no data available

## **12. ECOLOGICAL INFORMATION**

### **12.1 Toxicity**

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

### **12.2 Persistence and degradability**

no data available

### **12.3 Bioaccumulative potential**

no data available

### **12.4 Mobility in soil**

no data available

### **12.5 Other adverse effects**

no data available

## **13. DISPOSAL CONSIDERATIONS**

### **13.1 Disposal methods**

#### **Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### **Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

### 14. TRANSPORT INFORMATION

#### 14.1 UN Number

no data available

#### 14.2 UN Proper Shipping Name

no data available

#### 14.3 Transport hazard class(es)

no data available

#### 14.4 Packing group, if applicable

no data available

#### 14.5 Environmental hazards

no data available

#### 14.6 Special precautions for user

no data available

#### 14.7 Transport in bulk according to IMO instruments

no data available

### 15. REGULATORY INFORMATION

#### 15.1 Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)	Listed.
EC Inventory	Listed.
United States Toxic Substances Control Act (TSCA) Inventory	Not Listed.
China Catalog of Hazardous chemicals 2015	Not Listed.
New Zealand Inventory of Chemicals (NZIoC)	Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Not Listed.
Vietnam National Chemical Inventory	Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.
Korea Existing Chemicals List (KECL)	Not Listed.

### 16. OTHER INFORMATION

#### Information on revision

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#### Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

### References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>  
HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>  
IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>  
eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)  
CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>  
ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>  
ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>  
Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>  
ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

### Other Information

no data available

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